

REMEDIAL DESIGN FOR LAND USE CONTROLS
Naval Station Great Lakes
Site 12 – Harbor Dredge Spoil Area

1. PURPOSE

The purpose of this Land Use Control (LUC) Remedial Design (RD) for Site 12, Harbor Dredge Spoil Area (hereafter Site 12 or the Site) is to provide information on how the remedy selected in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Record of Decision (ROD) for Site 12 will be implemented and maintained. The ROD, dated March 2016 (signed July and September 2016), establishes Remedial Action Objectives (RAOs), prescribes a remedy, and stipulates the implementation of certain LUCs to prevent future residential development at Site 12. The LUCs include inspection and maintenance of existing grassy and gravel areas to prevent exposure to soil contaminants by industrial/commercial and construction workers, to prohibit usage of Site groundwater, and to prohibit the excavation and uncontrolled removal of soil from the Site. These controls will manage unacceptable human health risks by minimizing receptors' exposure to contaminated soil and groundwater. This LUC RD was prepared as a result of the selection of LUCs as a component of the remedy in accordance with the Site 12 ROD and Memorandum of Agreement (MOA) executed between the Navy and Illinois Environmental Protection Agency (Illinois EPA) dated September 20, 2003. This LUC RD is a primary document under the MOA.

The inspections and reporting requirements described herein will be effective immediately upon approval of this LUC RD by Illinois EPA. Once put into effect, the requirements set forth in this document will remain applicable to Site 12 during Navy ownership and during subsequent ownership of the Site until concentrations of hazardous substances in the affected media at Site 12 have been reduced to levels that allow for unlimited use and unrestricted exposure (uu/ue).

LUCs will be implemented, maintained, monitored, enforced, and reported on as provided in the ROD and Sections 3.0 and 4.0 of this LUC RD. In addition, use of groundwater and surface water runoff within all geographical areas of the base for any purpose is strictly prohibited without prior written approval in accordance with Naval Station Great Lakes Instruction 11130.1 dated September 29, 2003. Groundwater underlying Naval Station Great Lakes is not used for drinking water and is not expected to be used as a water supply. The installation of groundwater wells (other than environmental evaluation or monitoring wells) is also prohibited by Naval Station Great Lakes Instruction 11130.1 (Ground Water Use Restrictions).

2. SITE DESCRIPTION

Site 12 was used for placement of dredge spoils from the boat slip (a.k.a Boat Basin or Site 27) area in the harbor during dredging conducted in 1952 and the 1970s and also for placement of other backfill materials that presumably came from other

locations at Naval Station Great Lakes. The Site is bounded on the north by the Naval Station Great Lakes storm water retention basin, on the east by the Naval Station Great Lake Outer Harbor and Lake Michigan, on the south by the concrete pier that is part of the Outer Harbor Breakwater and the neighboring property beach area, and on the west by the 50- to 60-foot-high wooded bluff (hillside) (see Attachment 1).

Site 12 is a flat area approximately 3.5 acres in size along the southern boundary of Naval Station Great Lakes. The Site is currently a grass-covered field rising westward from the shore of Lake Michigan and is used as a picnic and recreational area. The only structure on the site is a picnic pavilion overlooking the lake and an archery range is situated in the northern portion of the site. A gravel road transects the site from north to south and terminates in a gravel parking lot with the concrete pier at the southern end. There are no specific plans for use of the Site in the foreseeable future. Site LUCs will be maintained until uu/ue is achieved, which is when Site media concentrations of hazardous substances in Site media decrease to less than Illinois EPA Tiered Approach to Corrective Action Objectives criteria or background concentrations identified by the Illinois EPA.

3. LAND USE CONTROL PERFORMANCE OBJECTIVES

The following performance objectives for the LUC remedy to be implemented at Site 12 will be incorporated into the LUC Implementation Plan (Attachment 2) and provided to the various entities listed in Sections 4.a.1 (United States [U.S.] EPA Region 5 and Illinois EPA) below:

- a. Prohibit residential and non-residential special uses (such as for child-care facilities, pre-schools, elementary schools, secondary schools, playgrounds, and convalescent or nursing care facilities) by a population that requires special protections.
- b. Inspect and maintain existing grassy and gravel areas to prevent exposure to soil contaminants by industrial/commercial and construction workers;
- c. Prohibit the excavation, drilling, soil disturbance, and/or uncontrolled removal of soil within the limits of Site 12. No earthwork can be performed without an appropriate excavation plan including safety precautions. Prior review of excavation work plans is required by the Navy to make sure they include adequate worker health and safety precautions and to confirm proper handling and management of contaminated materials.
- d. Prohibit uses of groundwater from the surficial aquifer underlying the Site (including, but not limited to, human consumption, dewatering, irrigation, heating/cooling purposes, and industrial processes) unless prior written approval is obtained from the Navy and Illinois EPA (as required by the MOA and Naval Station Great Lakes Instruction 11130.1).

These performance objectives for the LUC remedy will be incorporated into a deed of conveyance if this property is transferred out of federal ownership. These LUCs on real property at Site 12 will be maintained until concentrations of hazardous substances in soil and groundwater are reduced to concentrations that allow uu/ue.

4. REMEDY IMPLEMENTATION ACTIONS

For the purposes of this LUC RD, the term “implementation actions” means the actions to implement, operate, maintain, enforce, and report the LUC component of the remedy. The Navy shall perform short- and long-term implementation actions at Site 12 per *The Principles and Procedures for Specifying, Monitoring, and Enforcement of Land Use Controls and other Post-ROD Actions* (2003a), the ROD, and applicable Navy directives, e.g., Commander, Navy Region, Naval Station Great Lakes Instructions etc.

a. Navy Responsibilities with Respect to LUC Inspections, Reporting, and Enforcement: The following LUC implementation actions shall be undertaken by the Navy to make sure the aforementioned LUC performance objectives for Site 12 are met and maintained:

- 1. LUC RD Distribution:** Within 30 days of receiving Illinois EPA approval of this LUC RD, the Navy will undertake the following specific actions:
 - (i) Send a copy of the LUC RD to U.S. EPA Region 5 and Illinois EPA.
 - (ii) Add the LUC Implementation Plan (Attachment 2) to the Naval Station Great Lakes MOA and LUC TRACKER.
 - (iii) Indicate where LUCs have been imposed and annotate LUC objectives in the Naval Installation Restoration Information Solutions (NIRIS) database for Naval Station Great Lakes and follow LUC-related procedures in the LUC Implementation Plan pertaining to ground-disturbing activity and changes in land use.
- 2. Site Inspections:** Beginning upon approval of this LUC RD by Illinois EPA and continuing until the effective date of property transfer, the Navy will undertake annual physical inspections of the Site to confirm continued compliance with all LUC objectives. Upon conveyance of the Site, the Navy will require, via appropriate provisions to be placed in its deed of conveyance, that subsequent owners continue annual Site inspections to make sure that LUC performance objectives are being complied with by future users of the property.
- 3. Compliance Reporting:** Beginning upon approval of this LUC RD and continuing until the effective date of property conveyance, the Navy will provide to Illinois EPA an annual LUC Compliance Certificate for Site 12 consistent with the form attached hereto as Attachment 3. In addition, should

any deficiency(ies) be found during the annual inspection, the Navy will provide to Illinois EPA, along with the LUC Compliance Certificate, a separate written explanation indicating the specified deficiency(ies) found and what efforts or measures have been or will be taken to correct the deficiency(ies).

4. **CERCLA Five-Year Reviews:** The Navy shall conduct Five-Year Reviews of the Site 12 LUC remedy, as required by CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan. The Five-Year Review process will continue until the hazardous substances, pollutants, or contaminants on site are no longer present at concentrations that do not allow for uu/ue.
5. **Notice of Planned Change in Land Use:** The Navy shall notify Illinois EPA at least 45 days in advanced of proposals for changes in land use that would be inconsistent with use restrictions and exposure assumptions described in the ROD, any anticipated action that may disrupt LUC effectiveness, or any action that may alter or negate the need for LUCs.
6. **Notice of Planned Property Conveyances:** The Navy shall notify Illinois EPA at least 6 months prior to any transfer, sale, or lease of any property subject to LUCs required by a decision document. This will enable Illinois EPA to be involved in discussions to make sure that appropriate provisions, such as the Illinois EPA's Uniform Environmental Covenants Act 765 ILCS 122 (an environmental covenant), are included in the conveyance documents to maintain effective LUCs. If it is not possible for the Navy to notify Illinois EPA at least 6 months prior to any transfer, sale, or lease of any property subject to LUCs, then the Navy shall notify Illinois EPA as soon as possible (but not later than 45 days) prior to the conveyance.

The Navy further agrees to provide Illinois EPA with similar notice, within the same time frames, as to a federal-to-federal transfer of property.

The Navy shall provide a copy of the executed deeds or transfer documents to U.S. EPA Region 5 and Illinois EPA.

7. **Opportunity to Review Text of Intended Deed Restrictions:** Prior to conveyance of the Site, Illinois EPA representatives will be given reasonable opportunity to review and concur on the applicable deed language related to all LUCs and associated rights of entry for Illinois EPA for purposes of LUC oversight and enforcement. It is agreed that the provisions in that deed will:
 - (i) Be no less restrictive than the objectives described in Section 3 of this LUC RD;
 - (ii) Be consistent with Illinois real property law and be made to run with the land so that they shall be binding on all subsequent owners of the

property, unless or until each LUC is released, and shall include a legal description of the property where the LUCs are to implemented;

- (iii) Acknowledge that Illinois EPA is a third-party beneficiary of those LUCs until such time as each LUC is terminated from the property;
- (iv) Provide that the Navy shall not modify or terminate any LUC, implementation action, or land use without prior Illinois EPA concurrence; and
- (v) Include, as required by CERCLA 120(h)(3), a notice of the type and quantity of hazardous substances stored for 1 year or more, known to have been released or disposed on the property, a notice of the time at which such storage, release, or disposal took place, and a description of the remedial action taken, if any.

8. Notification should Action(s) that Interferes with LUC Effectiveness be Discovered: The Navy will notify Illinois EPA as soon as practicable, but no longer than 10 days, after discovery of any activity that is inconsistent with the LUC objectives or restrictions, or any other action that may interfere with the effectiveness of the LUCs. Consistent with Paragraph 9 below, the Navy will then work with Illinois EPA and the new owner(s) of the property to correct the problem(s) discovered. This reporting requirement does not preclude the Navy from taking immediate action pursuant to its CERCLA authority to prevent any actual or perceived risk(s) to human health or the environment.

9. LUC Enforcement: Should the LUC remedy reflected in this LUC RD fail, the Navy will coordinate with Illinois EPA to make sure that appropriate actions are taken to re-establish its protectiveness. These actions may range from informal resolutions with the owner or violator of a LUC provision(s) as described in this LUC RD, to the institution of judicial action under the auspices of State property law or CERCLA. Alternatively, should the circumstances warrant such, the Navy could choose to exercise its response authorities under CERCLA then seek cost recovery after the fact from person(s) or entity(ies) who violated a given LUC. Should the Navy become aware that any future owner or user of the property has violated any LUC requirement over which a local agency may have independent jurisdiction, the Navy will notify these agencies of such violation(s) and work cooperatively with them to re-achieve owner/user compliance with LUCs.

10. Termination of LUCs: When the Navy determines, with Illinois EPA concurrence, that one or more of the LUCs at Site 12 are no longer needed for protection of human health and the environment, the Navy shall provide to the owner of the property an appropriate release for recordation with the deed pertaining to the Site and will also timely advise Illinois EPA and U.S. EPA Region 5 of that action.

b. Responsibilities of Subsequent Owners with Respect to LUC Inspections, Reporting, and Enforcement: Via provisions to be contained in the deed(s) or other enforceable document(s) pertaining to the conveyance of the Site, the Navy will cause subsequent owners to assume the following LUC implementation responsibilities to make sure that the aforementioned LUC performance objectives for Site 12 are complied with after property transfer:

- 1. Site Inspections:** The subsequent property owner(s) will conduct annual physical inspections of the Site to confirm continued compliance with all LUC objectives unless and until all LUCs at the Site are terminated with Illinois EPA approval.
- 2. Compliance Reporting:** The subsequent property owner(s) will provide to the Navy and Illinois EPA an annual LUC Compliance Certificate for Site 12 consistent with the form attached hereto as Attachment 3, unless and until all LUCs are terminated at the Site. In addition, should any deficiency(ies) be found during any annual reporting period, the subsequent property owner(s) will provide to the Navy and Illinois EPA, along with the required Certificate, a separate written explanation indicating the specific deficiency(ies) found and what efforts or measures have or will be taken to correct those deficiencies. The need to continue to provide such inspections and certifications on an annual basis will be re-evaluated by the Navy and Illinois EPA as part of the Five-Year Review process.

5. FAILURE TO IMPLEMENT LAND USE CONTROL

- a. Navy:** Should the Navy fail to complete a required LUC implementation action, Illinois EPA shall notify the Navy Remedial Project Manager and seek immediate action. If the Navy fails to complete a required LUC implementation action within a reasonable time of being so notified, Illinois EPA may notify the Deputy Assistant Secretary of the Navy (Environment), who will make sure that necessary action is taken.
- b. Subsequent Owner or Third Party:** Should a subsequent owner of or a third party at the property fail to complete a required LUC implementation action for which such owner or party is responsible, Illinois EPA and the Navy will consult on the appropriate enforcement action. If after the property has been transferred, the Navy fails to complete a required LUC implementation for which it is responsible, Illinois EPA will notify the cognizant Naval Facilities Engineering Command component, which at this time is the Naval Facilities Engineering Command Mid-Atlantic (NAVFAC MIDLANT) located in Norfolk, Virginia or as specified in the appropriate property conveyance documents. If necessary, Illinois EPA may notify the Deputy Assistant Secretary of the Navy (Environment), who will make sure that necessary corrective action is taken.

References

Navy/U.S. EPA, 2003a. Principles and Procedures for Specifying, Monitoring, and Enforcement of Land Use Controls and other Post-ROD Actions.

Naval Station Great Lakes, 2003b. Memorandum of Agreement between the Illinois Environmental Protection Agency, the United States Environmental Protection Agency, Region 5, and the United States Department of the Navy, September 30.

Tetra Tech, 2011. Sampling and Analysis Plan, Remedial Investigation for Site 12 – Harbor Dredge Spoil Area, Naval Station Great Lakes, Great Lakes, Illinois, January.

Tetra Tech, 2012. Sampling and Analysis Plan Addendum for the Phase 2 Remedial Investigation for Site 12 - Harbor Dredge Spoil Area, Naval Station Great Lakes, Great Lakes, Illinois. December.

Tetra Tech, 2013. Sampling and Analysis Plan Addendum for the Phase 3 Remedial Investigation for Site 12 - Harbor Dredge Spoil Area, Naval Station Great Lakes, Great Lakes, Illinois. August.

Tetra Tech, 2014a. Remedial Investigation/Risk Assessment Report for Site 12 – Harbor Dredge Spoil Area, Naval Station Great Lakes, Great Lakes, Illinois, June.

Tetra Tech, 2015a. Focused Feasibility Study, Site 12 – Harbor Dredge Spoil Area, Naval Station Great Lakes, Great Lakes, Illinois, November.

Tetra Tech, 2015b. Proposed Plan, Site 12 – Harbor Dredge Spoil Area, Naval Station Great Lakes, Great Lakes, Illinois, December.

Tetra Tech, 2016. Record of Decision, Site 12 – Harbor Dredge Spoil Area, Naval Station Great Lakes, Great Lakes, Illinois, March.

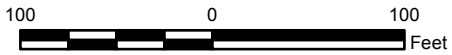
Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2014 ESRI and its data suppliers).

COORD ID	Easting	Northing
A	1119246	2054369
B	1119404	2054382
C	1119536	2054559
D	1119661	2054209
E	1119785	2054071
F	1119244	2054069



Legend

- LUC Coordinate
- LUC Boundary



SITE 12 - HARBOR DREDGE SPOIL AREA
NAVAL STATION GREAT LAKES
GREAT LAKES, ILLINOIS

CTO WE26	
DRAWN BY K. MOORE	DATE 11/13/17
CHECKED BY L. CRUMLEY	DATE 11/13/17
FIGURE NUMBER ATTACHMENT 1	

**LAND USE CONTROL
IMPLEMENTATION PLAN
HARBOR DREDGE SPOIL AREA – SITE 12
LUC #22**

1. Site Description: Site 12 was the location for placement of dredge spoils from the boat slip (a.k.a. the Boat Basin or Site 27) area in the harbor during dredging conducted in 1952 and the 1970s and backfill materials that presumably came from other locations at Naval Station Great Lakes. Site 12 contaminants of concern (COCs) are arsenic, hexavalent chromium, several polynuclear aromatic hydrocarbons, alpha-chlordane, gamma-chlordane, heptachlor, and Aroclor-1254 in soil and arsenic in groundwater.
2. Site Location: Site 12 is bounded on the north by the Naval Station Great Lakes storm water retention basin, on the east by the Naval Station Great Lake Outer Harbor and Lake Michigan, on the south by the concrete pier that is part of the Outer Harbor Breakwater and the neighboring property beach area, and on the west by the 50- to 60-foot-high wooded bluff (hillside).
3. LUC Objective(s): Prohibit unacceptable risk from exposure to contaminated soil and groundwater under residential use and non-residential special use scenarios and restrict disturbance of surface and subsurface soil.
4. LUC(s) Implemented to Achieve Objective(s): Prohibition of residential uses and special non-residential uses (such as for child-care facilities, pre-schools, elementary schools, secondary schools, playgrounds, convalescent, or nursing care facilities) by a population that requires special protections.
 - 4a. ***Property Use Restriction***
Residential uses of the site are prohibited and annual inspections will confirm compliance. Site 12 does not pose a threat to human health or the environment under an industrial/commercial or construction worker land use scenario; however, worker health and safety precautions are needed if surface or subsurface soil is disturbed (see 4c.).
 - 4b. ***Groundwater Use Restriction***
The installation of groundwater wells (other than for environmental evaluation or monitoring wells) is prohibited to prevent exposure to contaminated groundwater at Site 12. In addition, the installation of groundwater wells (other than environmental evaluation or monitoring wells) is prohibited to all geographic areas of Naval Station Great Lakes by Naval Station Great Lakes Instruction 11130.1 (Ground Water Use Restrictions).

4c. ***Soil Disturbance Restriction***

The excavation, drilling and soil disturbance and/or uncontrolled removal of soil, from Site 12 without prior review of work plans by the Navy and the Illinois Environmental Protection Agency (Illinois EPA) is prohibited. These reviews are necessary to maintain the final remedy, ensure adequate worker health and safety precautions and to confirm proper management and disposal of contaminated soil.

5. Decision Document: Record of Decision for Site 12, Tetra Tech, Naval Station Great Lakes, Great Lakes, Illinois, March 2016.
6. Other Pertinent Information: The site is in a recreational area that consists of maintained grass open areas, a picnic pavilion, archery range, and gravel parking lot.
7. LUCIP: As with all federal facilities, a Base Master Plan was developed to manage all construction activities based on current and future development of Naval Station Great Lakes. The Base Master Plan is included as part of the Regional Shore Information Program and is updated as changes are made. Site 12 will be included as part of this system, identifying it as an environmental area of concern. Prior to any construction activities or intrusive work at Site 12, design plans will be forwarded to the Naval Facilities Engineering Command (NAVFAC) Environmental Business Line Core for review, certification, and approval. Approval of construction activities will ensure that worker safety requirements of 29 Code of Federal Regulations 1910 are met and proper management of any encountered contaminated material per Title 35 Ill. Administrative Code, Subtitle G: Waste Disposal, and re-establishment of institutional controls.

Land Use Controls (LUCs) will be implemented and maintained by the Navy in perpetuity, or until the Navy and Illinois EPA make a joint determination that they may be removed. The Navy or any subsequent owners shall not modify, delete, or terminate any LUC without Illinois EPA concurrence. The Navy is responsible for implementing, maintaining, reporting on, and enforcing the LUCs described in the Site 12 ROD. The LUC Compliance Certificate is included in this Land Use Control Implementation Plan (LUCIP) as Attachment A. Although the Navy may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Navy shall retain ultimate responsibility for the remedy integrity. Should any LUC remedy fail, the Navy will ensure that appropriate actions are taken to re-establish the remedy's protectiveness and may initiate legal action to either compel action by a third party(ies) and/or to recover the Navy's costs for remediating any discovered LUC violation(s). The Navy will maintain, monitor, and enforce the LUCs according to the LUC RD.

The alternative would place supplemental administrative controls on the property through the LUC TRACKER database to prohibit use of groundwater from the shallow aquifer, restrict property use, and restrict soil disturbance. Land use controls in the LUC Tracker system would be transferred to the property deed should the federal government sell or otherwise relinquish ownership of the property.

Additionally, pursuant to enactment of the Illinois EPA's Uniform Environment Covenants Act (UECA), 765 ILCS 122, LUC responsibility will be documented in an Environmental Covenant that will be incorporated into the pertinent contractual and property documentation, such as a purchase agreement, deed, or lease.

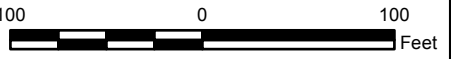
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SITE 12 - HARBOR DREDGE SPOIL AREA
NAVAL STATION GREAT LAKES
GREAT LAKES, ILLINOIS

CTO WE26	
DRAWN BY K. MOORE	DATE 11/13/17
CHECKED BY L. CRUMLEY	DATE 11/13/17
FIGURE NUMBER ATTACHMENT 2	

Site 12 Annual LUC Compliance Certificate
Harbor Dredge Spoil Area
 EPA I.D. No. IL7170024577
 Illinois EPA No. 0971255048

Property Owner: _____

Property Address: _____

Is evaluation for all or a portion of the Site 12 property?* _____

*If evaluating only a portion of the site, attach a figure identifying the portion being evaluated.

This evaluation covers the period from _____ **through** _____.

Form shall be submitted by _____ of the year following the reporting period.

Certification Checklist

	In Compliance	Non-Compliance	See Comment
1) Parcel not being used for residential use or non-residential special use (child-care facility, school, playground, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) No excavation or uncontrolled removal of Site soil (unless previously approved by Illinois EPA and the Navy).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) No groundwater being used for human consumption or other purposes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I, the undersigned, hereby certify that I am an authorized representative of the above-named property owner and that the above-described Land Use Controls have been complied with for the period noted. Alternately, any known deficiencies and owner's completed or planned actions to address such deficiencies are described in the attached Explanation of Deficiency(ies).

Signature

Date

Mail completed form(s) to:

Illinois Environmental Protection Agency
 Bureau of Land
 Federal Facilities Unit Manager for Naval Station Great Lakes
 1021 North Grand Avenue East
 P.O. Box 19276
 Springfield, IL 62794-9276
 Attn: Brian Conrath or current title holder